

1. A shut-down circuit configured for use with an electronic ballast coupled to a
2 lamp in a control path, the circuit comprising:
a device for sensing the electrical energy associated with the control path; and
4 a sensing circuit for shutting down the ballast in the event that the energy does not
conform to a predetermined condition.
2. The circuit of claim 1, wherein the energy is current indicative of lamp
2 installation or removal.
3. The circuit of claim 1, wherein the energy is voltage indicative of arcing.
4. The circuit of claim 1, wherein the device for sensing the electrical energy
2 associated with the control path is an isolation transformer.
5. The circuit of claim 1, wherein the device for sensing the electrical energy
2 associated with the control path includes an optical isolator.
6. The circuit of claim 1, further including electronic componentry to disable the
2 sensing circuit during initial energization of the lamp.
7. The circuit of claim 1, wherein the sensing circuit includes:
2 a node that should be at or near a predetermined electrical potential when the lamp is
operating properly; and
4 a switch coupled to the node that turns on or off to shut down the ballast if the node is
not at or near the predetermined electrical potential.
8. The circuit of claim 7, wherein the switch is a Schmitt trigger.
9. The circuit of claim 3, including a high-pass filter or differentiator and

2 detector to detect high-frequency noise indicative of arcing.

10. The circuit of claim 3, including a phase-locked loop coupled to a low-pass
2 filter to detect high-frequency noise indicative of arcing.

11. A shut-down circuit configured for use with an electronic ballast coupled to a
2 lamp in a control path, the circuit comprising:
a device for sensing voltage fluctuations in the control path; and
4 a circuit for shutting down the ballast in the event that the voltage fluctuations are
indicative of arcing.

12. The circuit of claim 11, wherein the device for sensing the voltage
2 fluctuations in the control path is an isolation transformer.

13. The circuit of claim 1, wherein the device for sensing the electrical energy
2 associated with the control path includes an optical isolator.

14. The circuit of claim 1, further including electronic componentry to disable the
2 sensing circuit during initial energization of the lamp.

15. The circuit of claim 1, wherein the circuit for shutting down the ballast
2 includes:

a node that should be at or near a predetermined electrical potential when the lamp is
4 operating properly; and

a switch coupled to the node that turns on or off to shut down the ballast if the node is
6 not at or near the predetermined electrical potential.

16. The circuit of claim 15, wherein the switch is a Schmitt trigger.

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17. The circuit of claim 11, including a high-pass filter or differentiator and
2 detector to detect high-frequency noise indicative of arcing.
18. The circuit of claim 11, including a phase-locked loop coupled to a low-pass
2 filter to detect high-frequency noise indicative of arcing.